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An Unusual Aberrantly Colored Pleuronectid.

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(Plate I).

Abnormal coloration in the Heterosomata has been under study by Gudger and Firth for some time and in their records they have included an analysis of the earlier literature. See Gudger (1934 and 1935) and Gudger and Firth (1935, 1936a, b, c, and 1937). The case here recorded (A.M.N.H. 14142) differs from any described by them in certain interesting respects.

This specimen, a nearly ripe female, *Pseudopleuronectes americanus* (Walbaum), measures 195 mm. in standard length and 244 mm. in total length. It was caught by Mr. William Stratton near Bayside, Long Island, on November 8, 1938, and sent to the New York Aquarium through the courtesy of Mr. Fred Fletcher.

The abnormality in coloration amounts to a complete absence of pigmentation on the upper side of the body. The vertical fins, however, are normally pigmented, although in the state of preservation received (iced) seemed to represent a pale phase, a feature not uncommon to iced fish in a fairly soft condition. The pectoral fin of the upper side is pigmented, as are both the pelvics, while the pectoral of the lower side is without pigment as is normal in this species. All the pigmented fins are encroached upon with varying pigmentless areas at their bases.

The head is also without pigment on the upper side, except for the protruding parts of the eyes and a small triangle between and ahead of them, which, however, does not reach the lips. The eyes themselves are normally pigmented. This fish, then, represents a reversal of the more usually reported abnormal color differential in which the dark pigment of the upper side appears on the normally white lower surface. There is here a pretty problem in the dynamics of coloration involving the inverse of those dark on the normally white lower side.

There is no evidence of a hooked dorsal or other morphological anomaly sometimes associated with atypical coloration in these fishes. There is, however, a very evident traumatic peculiarity. As though it were not enough alone for this specimen to grow to maturity, it clearly survived and healed perfectly what appears to have been a bite out of the middle of its back. Such healed injuries are common enough in fishes generally, there usually being one or more such specimens present in the collections of the New York Aquarium. These arrive along with other fishes and are generally not placed on exhibition for obvious reasons. This particular case is, however, of unusual interest since it raises the question of the protective value of flounder coloration. Specimens of this species, along with flounders generally, are extremely inconspicuous as they lie on the sea floor. Not

only do they blend well with the bottom colors, but actually go through extensive color and pattern changes in which the tone and texture of their surroundings are very closely approximated. See, for example, Sumner (1911) and Mast (1916). In addition to, or in spite of this, they further hide themselves, when the nature of the bottom permits, by causing a flurry in the sand or mud in which they then sink so that only their eyes protrude. Such being the case, it might be inferred that since the present individual was white on the top side, it became an easy mark. To offset this conspicuousness it may be imagined that it buried itself deeper than others so that most of the time only its *pigmented* eyes protruded. However, as a matter of fact, the greatest hazard to these flat fish occurs when they are swimming, for even the normally colored ones can then be easily seen, and, indeed, even when buried they are frequently caused to swim by larger fishes rooting in the bottom, presumably to dislodge them.

This sketch of flounder life and hazards is given merely as a background against which to point out that in spite of the normal hazards of all flatfish, this one without the alleged protection of changeable coloration and the fact that something did bite a chunk out of it, nevertheless grew to adulthood. It will be noted that this is all that is necessary for survival. This fish may have spawned last winter, or at least could have this winter if it had not suffered the fate of so many Long Island flounders—one not in the least associated with *any* of its individual peculiarities.

Lest it be thought that perhaps its injury was in some way connected with a decoloration of the upper surface, it may be pointed out that the writer, as already indicated, is more than usually familiar with injuries of this sort because of circumstances, and that in no case known to him is there any instance where abnormal pigmentation followed even vastly greater injuries. See, for example, figures of other similar injuries in Breder (1925 and 1934). It may be noted in Plate 1, along with the other items discussed, that the pigmentation of the fin adjacent to the wound is normal and in the pigmentless areas scales have covered the area of the wound.

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1936b. A reversed, almost wholly ambicolorate summer flounder, *Paralichthys dentatus*. *Amer. Mus. Novitates* (896): 1-5.

1936c. Ambicoloration, partial and complete in the southern flounder, *Paralichthys lethostigma*. *Amer. Mus. Novitates* (897): 1-7.

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EXPLANATION OF THE PLATE.

Abnormal Pseudopleuronectes americanus.

Fig. 1. Eyed or upper side.

Fig. 2. Blind or under side.